EXCEL ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NBA and NAAC with "A+"and Recognized by UGC(2f&12B)
KOMARAPALAYAM - 637303

B.E.SAFETY AND FIRE ENGINEERING
REGULATION – 2020
CHOICE BASED CREDIT SYSTEM
I TO VIII SEMESTERS CURRICULUM

I SEMESTER									
Code No.	**Course**	**Category**	**Periods / Week**			**C**	**Maximum Marks**		
			L	**T**	**P**		**CA**	**FE**	**Total**
Theory Course(s)									
20MA105	Mathematics – I for Mechanical Sciences	BS	3	2	0	4	40	60	100
20EC103	Basics of Electrical and Electronics Engineering	ES	3	0	0	3	40	60	100
20SF101	Fire Engineering Fundamentals	PC	3	0	0	3	40	60	100
Theory with Practical Course(s)									
20ENEXX	Language Elective – I	HSS	2	0	2	3	50	50	100
20CH103	Chemistry for Mechanical Sciences	BS	3	0	2	4	50	50	100
20ME101	Engineering Graphics	ES	1	0	4	3	50	50	100
Mandatory Course									
20MC101	Induction Programme	MC	2 Weeks			0	100	-	100
TOTAL			**15**	**2**	**8**	**20**	**370**	**330**	**700**

Language Electives – I									
Code No.	**Course**	**Category**	**Periods / Week**			**C**	**Maximum Marks**		
			L	**T**	**P**		**CA**	**FE**	**Total**
20ENE01	Communicative English	HSS	2	0	2	3	50	50	100
20ENE02	Advanced Communicative English	HSS	2	0	2	3	50	50	100

IISEMESTER									
Code No.	Course	Category	Periods / Week			C	Maximum Marks		
			L	T	P		CA	FE	Total
Theory Course(s)									
20MA205	Mathematics – II for Mechanical Sciences	BS	3	2	0	4	40	60	100
20ME201	Engineering Mechanics	ES	3	2	0	4	40	60	100
Theory with Practical Course(s)									
20ENEXX	Language Elective – II	HSS	2	0	2	3	50	50	100
20PH203	Physics for Mechanical Sciences	BS	3	0	2	4	50	50	100
20CS201	Problem Solving using Python	ES	3	0	2	4	50	50	100
Practical Course(s)									
20AE201	Safety Engineering Practices Laboratory	ES	0	0	2	1	50	50	100
Mandatory Course									
20MC201	Environmental Sciences	MC	2	0	0	0	100	-	100
Total			**16**	**4**	**8**	**20**	**380**	**320**	**700**

Language Electives – II									
Code No.	Course	Category	Periods / Week			C	Maximum Marks		
			L	T	P		CA	FE	Total
20ENE02	Advanced Communicative English	HSS	2	0	2	3	50	50	100
20ENE03	Hindi	HSS	2	0	2	3	50	50	100
20ENE04	French	HSS	2	0	2	3	50	50	100
20ENE05	German	HSS	2	0	2	3	50	50	100

III SEMESTER									
Code No.	Course	Category	Periods / Week			C	Maximum Marks		
			L	T	P		CA	FE	Total
Theory Course(s)									
20MA301	Transforms and Boundary Value Problems	BS	3	2	0	4	40	60	100
20SF301	Principles of Safety Management	ES	3	2	0	4	40	60	100
20SF302	Principles of Chemical Process	PC	3	0	0	3	40	60	100

20SF303	Fluid Mechanics and Machinery	PC	3	0	0	3	40	60	100
20SF304	Safety in Electrical Systems	ES	3	0	0	3	40	60	100
Theory with Practical Course(s)									
20SF305	Manufacturing Technology – I	PC	3	0	2	4	50	50	100
Practical Course(s)									
20SF306	Safety Elements Drawing	PC	0	0	2	1	50	50	100
20SF307	Fluid Mechanics and Strength of Materials Laboratory	PC	0	0	2	1	50	50	100
Mandatory Course									
20MC302	Interpersonal skills	MC	0	0	2	0	100	-	100
TOTAL			**18**	**4**	**8**	**23**	**450**	**450**	**900**

IV SEMESTER									
Code No.	**Course**	**Category**	**Periods / Week**			**C**	**Maximum Marks**		
			L	**T**	**P**		**CA**	**FE**	**Total**
Theory Course(s)									
20MA401	Numerical Analysis and Statistics	BS	3	2	0	4	40	60	100
20SF401	Basic concepts Fire Engineering	PC	3	0	0	3	40	60	100
20SF402	Strength of Materials	ES	3	2	0	4	40	60	100
20SF403	Thermal Engineering	PC	3	0	0	3	40	60	100
20SF404	Professional Ethics and Human Values	HSS	3	0	0	3	40	60	100
Theory with Practical Course(s)									
20SF405	Occupational Health and First Aid	PC	3	0	2	4	50	50	100
Practical Course(s)									
20SF406	Thermal Engineering Laboratory	PC	0	0	2	1	50	50	100
20SF407	Electrical Safety Laboratory.	PC	0	0	2	1	50	50	100
Mandatory Course									
20MC401	Soft Skills	MC	2	0	0	0	100	-	100
Total			**20**	**4**	**6**	**23**	**450**	**450**	**900**

V SEMESTER									
Code No.	Course	Category	Periods / Week			C	Maximum Marks		
			L	T	P		CA	FE	Total
Theory Course(s)									
20SF501	Design of Fire Protection Systems	PC	3	2	0	4	40	60	100
20SF502	Equipments of Fire Engineering	PC	3	2	0	4	40	60	100
20SF503	Chemical Process Safety	PC	3	0	0	3	40	60	100
20SFEXX	Professional Elective – I	PE	3	0	0	3	40	60	100
20YYOXX	Open Elective – I	OE	3	0	0	3	40	60	100
Theory with Practical Course(s)									
20SF504	Safety in Construction	PC	3	0	2	4	50	50	100
Practical Course(s)									
20SF505	Fire safety Engineering Laboratory	PC	0	0	2	1	50	50	100
20SF506	Chemical Engineering Laboratory	PC	0	0	2	1	50	50	100
TOTAL			**18**	**4**	**6**	**23**	**350**	**450**	**800**

VI SEMESTER									
Code No.	Course	Category	Periods / Week			C	Maximum Marks		
			L	T	P		CA	FE	Total
Theory Course(s)									
20SF601	Process Instrumentation and Control	PC	3	2	0	4	40	60	100
20SF602	Materials and Fire Engineering	PC	3	2	0	4	40	60	100
20SFEXX	Professional Elective - II	PE	3	0	0	3	40	60	100
20YYOXX	Open Elective – II	OE	3	0	0	3	40	60	100
Theory with Practical Course(s)									
20SF603	Legal aspects of Safety	PC	3	0	2	4	50	50	100
Practical Course(s)									
20SF604	Environmental Laboratory	PC	0	0	4	2	50	50	100
20SF605	Mini Project	EEC	0	0	2	1	50	50	100
20SF606	Internship	EEC	Two Weeks			1	100	0	100
Total			**15**	**4**	**8**	**22**	**410**	**390**	**800**

VII SEMESTER									
Code No.	Course	Category	Periods / Week			C	Maximum Marks		
			L	T	P		CA	FE	Total
Theory Course(s)									
20SF701	Hazard Identification and risk Management	PC	3	0	0	3	40	60	100
20SF702	Transportation system and safety	PC	3	0	0	3	40	60	100
20SFEXX	Professional Elective - III	PE	3	0	0	3	40	60	100
20SFEXX	Professional Elective - IV	PE	3	0	0	3	40	60	100
20YYOXX	Open Elective – III	OE	3	0	0	3	40	60	100
Practical Course(s)									
20SF704	Fire Engineering Laboratory	PC	0	0	4	2	50	50	100
20SF705	Design Project	EEC	0	0	2	1	50	50	100
TOTAL			**15**	**0**	**6**	**18**	**300**	**400**	**700**

VIII SEMESTER									
Code No.	Course	Category	Periods / Week			C	Maximum Marks		
			L	T	P		CA	FE	Total
20SFEXX	Professional Elective - V	PE	3	0	0	3	40	60	100
20SFEXX	Professional Elective – VI	PE	3	0	0	3	40	60	100
20SF801	Major Project	EEC	0	0	20	10	50	50	100
Total			**6**	**0**	**20**	**16**	**130**	**170**	**300**

PROFESSIONAL ELECTIVES (PE)									
Stream – I Industrial Safety Engineering									
Code No.	**Course**	**Category**	**Periods / Week**			**C**	**Maximum Marks**		
			L	**T**	**P**		**CA**	**FE**	**Total**
20SFE01	Industrial Noise and Vibration Control	PE	3	0	0	3	40	60	100
20SFE02	Introductory Design of Structures	PE	3	0	0	3	40	60	100
20SFE03	Computational Fluid Dynamics	PE	3	0	0	3	40	60	100
20SFE04	PlantLayoutand MaterialsHandling	PE	3	0	0	3	40	60	100
20SFE05	Work Studyand Ergonomics	PE	3	0	0	3	40	60	100
20SFE06	HumanFactors in Engineering	PE	3	0	0	3	40	60	100
20SFE07	Power Plant Engineering	PE	3	0	0	3	40	60	100
20SFE08	Industrial Ecology	PE	3	0	0	3	40	60	100
Stream – II Safety Engineering									
20SFE21	Fluid Power Safety	PE	3	0	0	3	40	60	100
20SFE22	Safety in Health Care-Waste Management	PE	3	0	0	3	40	60	100
20SFE23	Reliability Engineering	PE	3	0	0	3	40	60	100
20SFE24	3D Printing Technology	PE	3	0	0	3	40	60	100
20SFE25	Maintenance Engineering	PE	3	0	0	3	40	60	100
20SFE26	Safety in Mines	PE	3	0	0	3	40	60	100
20SFE27	Safety in Textile Industry	PE	3	0	0	3	40	60	100
20SFE28	Computer Aided Hazard Analysis	PE	3	0	0	3	40	60	100
20SFE29	Process Instrumentation and Control	PE	3	0	0	3	40	60	100
20SFE30	Legal Aspects of HSE	PE	3	0	0	3	40	60	100
Stream – III Fire Engineering									
20SFE41	Explosives Technology and Safety	PE	3	0	0	3	40	60	100
20SFE42	Fire Dynamics	PE	3	0	0	3	40	60	100
20SFE43	Life Safety in Building Fire	PE	3	0	0	3	40	60	100
20SFE44	Planning and Design of Fire Protection Systems	PE	3	0	0	3	40	60	100
20SFE45	Structural Fire Safety	PE	3	0	0	3	40	60	100

20SFE46	Automotive emission and control	PE	3	0	0	3	40	60	100
20SFE47	Automobile Engineering and Safety	PE	3	0	0	3	40	60	100
20SFE48	Fireworks Safety	PE	3	0	0	3	40	60	100

OPEN ELECTIVE COURSES (For Other Branches)									
Code No.	**Course**	**Category**	**Periods / Week**			**C**	**Maximum Marks**		
			L	**T**	**P**		**CA**	**FE**	**Total**
20SFO01	Food and Bio-safety	OE	3	0	0	3	40	60	100
20SFO02	Disaster management	OE	3	0	0	3	40	60	100
20SFO03	Personality Management	OE	3	0	0	3	40	60	100
20SFO04	Reliability Engineering	OE	3	0	0	3	40	60	100
20SFO05	Principles of Industrial management	OE	3	0	0	3	40	60	100
20SFO06	Industrial Safety and EnvironmentActs	OE	3	0	0	3	40	60	100

ONECREDIT COURSES									
Code No.	**Course**	**Category**	**Periods / Week**			**C**	**Maximum Marks**		
			L	**T**	**P**		**CA**	**FE**	**Total**
20SFA01	Intellectual Property Rights	EEC	1	0	0	1	100	0	100
20SFA02	Statistical Methods for Engineers	EEC	1	0	0	1	100	0	100
20SFA03	Factories Act	EEC	1	0	0	1	100	0	100
20SFA04	CNC Programming	EEC	1	0	0	1	100	0	100
20SFA05	Fire Extinguisher	EEC	1	0	0	1	100	0	100
20SFA06	Lean and Six sigma	EEC	1	0	0	1	100	0	100

SUMMARY

S. No	CATEGORY	CREDITS PER SEMESTER								TOTAL CREDITS (AICTE)	CREDITS in %
		I	II	III	IV	V	VI	VII	VIII		
1.	HSS	3	3					3		9 (10-14)	5.45%
2.	BS	8	8	4	4					24 (22-28)	14.55%
3.	ES	6	9	7	4					26 (24)	15.76%
4.	PC	3		12	15	17	14	5		66 (48)	40.00%
5.	PE					3	3	6	6	18 (18)	10.91%
6.	OE					3	3	3		9	5.45%
7.	EEC						2	1	10	13 (12-16)	7.88%
8.	MC	0	0	0	0					0	0.00%
Total		20	20	23	23	23	22	18	16	165	100%

HSS - Humanities and Social Sciences
BS - Basic Sciences
ES - Engineering Sciences
PC - ProfessionalCore
PE - ProfessionalElectives
OE - Open Electives
EEC - Employability Enhancement Courses
MC - Mandatory Courses (Non-Credit Courses)
CA - ContinuousAssessment
FE - FinalExamination